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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/900,631	07/06/2001	Richard G. Ogier	SRI - 010B	7569
7590 02/08/2005 Moser, Patterson & Sheridan, LLP 595 Shrewsbury Avenue Suite 100 Shrewsbury, NJ 07702			EXAMINER BHANDARI, PUNEET	
			ART UNIT 2666	PAPER NUMBER

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/900,631	OGIER ET AL.	
	Examiner	Art Unit	
	Puneet Bhandari	2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-17, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 5 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Specification

1. The disclosure is objected to because of the following informalities: in paragraph 13, line 6 is missing phrase "of available bandwidth" before "allocated".

Appropriate correction is required.

Claim Objections

2. Claim 12 & 13 are objected to because of the following informalities:

Regarding claim 12, missing a word between percentage and allocated in line 7.

Regarding claim 13, missing a word between percentage and allocated in line 2.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3, 6-8 & 20 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Zavalkovsky et al. (US 6,839,327).

Regarding claim 1, method for attaining a per-hop behavior for a plurality of classes of packet traffic in a multi-hop network is anticipated by "Domain Set PHB Schema-200" disclosed in Fig.2; the per-hop behavior allocating to each class a

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nominal departure rate is anticipated by *"diffservQueueMinimumRate of 64 for BE, and 512 for AF"* disclosed in column 10, table 2 and minimum percentage of available bandwidth is anticipated by *"reserved bandwidth field 220"* disclosed in Fig-2, comprising:

Defining a first condition is anticipated by *"PHB tuning parameter diffservQueueMinimumRate"* disclosed in column 10, Table-2; that affects packet forwarding is anticipated by *"per hop packet forwarding behavior (PHB)"* disclosed in column 5, line 20-23; in accordance with the nominal departure rates allocated to the classes is anticipated by *"64 for BE, and 512 for AF"* disclosed in column 10, table 2, line 23

Defining a second condition is anticipated by *"PHB tuning parameter Reserved bandwidth field 220"* disclosed in Fig-2, that affects packet forwarding is anticipated by *"per hop packet forwarding behavior (PHB)"* disclosed in column 5, line 20-23; in accordance with the minimum percentages of available bandwidth allocated to the classes is anticipated by *"reserved bandwidth is minimum bandwidth that is reserved for this service"* disclosed in column 08, lines 17-21; and

Comparing a packet forwarding rate for each of the classes with the first and second conditions to select one of the classes for forwarding the packets of that class over the network is anticipated by *"One or more Domain PHB tuning parameters values are used to tune the set of PHB's that are contained within a DS domain"* disclosed in column 7, lines 54-57.

Regarding claim 2, wherein the first condition is whether the packet forwarding rate of each class is at most the nominal departure rate of that class is anticipated by *"diffservQueueMinimumRate for BE is 65 and for AF is 512"* disclosed in column 10, Table-2

Regarding claim 3, wherein the first condition is whether the packet forwarding rate of each class is at most the minimum percentage of available bandwidth of that class is anticipated by *"64 KB/S for BE, 512 KB/S for AF11, 512 KB/S for EF"* disclosed in Fig. 2, Row 220.

Regarding claim 6, method of assigning a scheduling priority to each class based on a criterion is anticipated by *"assigning high priority to VOIP packets and low priority to FTP packets"* disclosed in column 6, lines 60-65 or *"Best Effort, Assured Forwarding, Expedited Forwarding classes"* disclosed in column 7, lines 49-54.

Regarding claim 7, wherein the criterion is a delay that each class can tolerate is anticipated by *"assigning priority corresponds to QoS treatment parameters (delay)"* disclosed in column 6, lines 65-67 or *"Best Effort, Assured Forwarding, Expedited Forwarding classes"* disclosed in column 7, lines 49-54.

Regarding claim 8, the method further comprising identifying a plurality of the classes from which to select a class for packet forwarding is anticipated by *"assigning scheduling priority to classes BE, AF11, AF12, EF"* as disclosed in Fig. 2 row 214 and selecting the class with the highest scheduling priority from the identified plurality of classes is anticipated by *"assigning the scheduling class 2 to EF (expedited forwarding)"* disclosed in row 214, column 208 in Fig-2.

Regarding claim 20, an article of manufacture having computer-readable program means embodied thereon is anticipated by *"computer readable medium"* disclosed in column 14, lines 58-60; for attaining a per-hop behavior for a plurality of classes of packet traffic in a multi-hop network is anticipated by *"Domain Set PHB Schema"* disclosed in Fig.2; the per-hop behavior allocating to each class a nominal departure rate is anticipated by *"diffservQueueMinimumRate of 64 for BE, and 512 for AF"* disclosed in column 10, table 2 and minimum percentage of available bandwidth is anticipated by *"reserved bandwidth field 220"* disclosed in Fig-2, the article comprising:

Computer-readable means defining a first condition is anticipated by *"PHB tuning parameter diffservQueueMinimumRate"* disclosed in column 10, Table-2; that affects packet forwarding is anticipated by *"per hop packet forwarding behavior (PHB)"* disclosed in column 5, line 20-23; in accordance with the nominal departure rates allocated to the classes is anticipated by *"64 for BE (Best Effort), and 512 for AF (Assured Forwarding)"* disclosed in column 10, table 2, line 23

Computer-readable means defining a second condition is anticipated by *"PHB tuning parameter Reserved bandwidth field 220"* disclosed in Fig-2; that affects packet forwarding is anticipated by *"per hop packet forwarding behavior (PHB)"* disclosed in column 5, line 20-23; in accordance with the minimum percentages of available bandwidth allocated to the classes is anticipated *"reserved bandwidth is minimum bandwidth that is reserved for this service"* disclosed in column 08, lines 17-21; and

Computer-readable means for comparing a packet forwarding rate for each of the classes with the first and second conditions to select one of the classes for forwarding

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the packets of that class over the network is anticipated by *"One or more Domain PHB tuning parameters values are used to tune the set of PHB's that are contained within a DS domain"* disclosed in column 7, lines 54-57.

5. Claims **12 & 13** are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Baker et al. (US 6,775,231).

Regarding claim **12**, method for attaining a per-hop behavior for a plurality of classes of a packet traffic in a multi-hop network is anticipated by *"Differentiated Services domain network"* disclosed in Fig-2, the per-hop behavior allocating to each class a nominal departure rate is anticipated by *"measured packet arrival rate"* disclosed in column 5, lines 52-53 and minimum percentage of available bandwidth is anticipated by *"measured traffic loads"* disclosed in column 5, lines 18-20, comprising

Identifying each class with a non-empty queue that over a time interval is receiving less than the nominal departure rate and less than the minimum percentage bandwidth allocated to that class; is anticipated by *"it may be required that each class j should be allocated more resources than each class l whenever j is greater than l "* disclosed in column 4, lines 64-66 and

Selecting one of the identified classes according to a predefined criterion is anticipated by *"Weighted Fair queuing and Weighted Round Robin"* disclosed in column 5, lines 8-10, for forwarding the packet of the selected class over the network is anticipated by *"each of the core node should allocate would allocate required network resources to forward that packet"* disclosed in column 4, lines 65-67 and column 5, lines 1-4.

Regarding claim 13, method further comprising weighting each of the classes with a weight that corresponds to the minimum percentage allocated to that class is anticipated by *"weights are set dynamically based on measured traffic loads"* disclosed in column 5, lines 18-20, and wherein the predefined criterion is to use a weighted round robin order to select one of the identified classes for forwarding a packet of that class is anticipated by *"Weighted Round –Robin scheme for packet transmission"* disclosed in column 5, lines 37-43.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4 & 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zavalkovsky et al. (US 6,839,327) in view of Baker et al. (US 6,775,231).

Regarding claim 4, Zavalkovsky et al. (US 6,839,327) teaches all the limitations of claim 9 (see 102 rejection for claim 1 above) except Zavalkovsky et al. (US 6,839,327) does not expressly disclose method comprising of determining an average packet forwarding rate for each class over a time interval having predetermined duration. Baker et al. (US 6,775,231) discloses packet arrival rate measurement process (see Fig 5, column 5, lines 59-66). At the time invention was made, it would have been obvious to a person in ordinary skill in art to modify the method of attaining

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per-hop behavior of Zavalkovsky et al. (US 6,839,327) by determining an average packet forwarding rate for each class over a time interval having predetermined duration as indicated by Baker et al. (US 6,775,231). One in ordinary skill in art would have been motivated to do this so to determine the packet arrival rate for each service class every time a new packet arrives (see column 6, line 1-4 of Baker et al. (US 6,775,231)).

Regarding claim 9, Zavalkovsky et al. (US 6,839,327) teaches all the limitations of claim 9 (see 102 rejection for claim 1 above) except Zavalkovsky et al. (US 6,839,327) does not expressly disclose assigning weight to each class that corresponds to the minimum percentage of available bandwidth allocated to each class. Baker et al. (US 6,775,231) discloses weights are set dynamically based on measured traffic load (bandwidth available) (see column 5, line 15-20). At the time invention was made, it would have been obvious to a person in ordinary skill in art to modify the method of attaining per-hop behavior of Zavalkovsky et al. (US 6,839,327) by assigning weight to each classes that corresponds to the minimum percentage of available bandwidth allocated to each class to as indicated by Baker et al. (US 6,775,231). One in ordinary skill in art would have been motivated to do this so that the bandwidth is correctly distributed among multiple classes of packet (see col. 5, line 5-8 of Baker et al. (US 6,775,231)).

Regarding claim 10, Zavalkovsky et al. (US 6,839,327) and Baker et al. (US 6,775,231) teach all the limitations of claim 10 (see the rejection above) except Zavalkovsky et al. (US 6,839,327) and Baker et al. (US 6,775,231) do not expressly disclose method comprising of identifying a plurality of the classes from which to select

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a class for packet forwarding, and selecting one of the identified classes based on an order determined by the weights assigned to the identified classes. Baker et al. (US 6,775,231) also discloses a packet forwarding in accordance with weight allocated in multiple service classes (see column 5, lines 51-55). At the time invention was made, it would have been obvious to a person in ordinary skill in art to modify the method of attaining per-hop behavior of Zavalkovsky et al. (US 6,839,327) by identifying a plurality of the classes from which to select a class for packet forwarding, and selecting one of the identified classes based on an order determined by the weights assigned to the identified classes as indicated by Baker et al. (US 6,775,231). One in ordinary skill in art would have been motivated to do this so that the bandwidth is correctly distributed among multiple classes of packet (see col. 5, line 5-8 of Baker et al. (US 6,775,231)).

Regarding claim 11, Zavalkovsky et al. (US 6,839,327) and Baker et al. (US 6,775,231) teach all the limitations of claim 11 (see the rejection above) except Zavalkovsky et al. (US 6,839,327) and Baker et al. (US 6,775,231) do not expressly disclose weighted round robin order. Baker et al. (US 6,775,231) also discloses a packet forwarding in accordance with Weighted Round-Robin (see column 5, line 10). At the time invention was made, it would have been obvious to a person in ordinary skill in art to modify the method of attaining per-hop behavior of Zavalkovsky et al. (US 6,839,327) by adding a technique of weighted round robin order as indicated by Baker et al. (US 6,775,231). One in ordinary skill in art would have been motivated to do this so that the bandwidth is correctly distributed among multiple classes of packet (see col. 5, line 5-8 of Baker et al. (US 6,775,231)).

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8. Claims **14, 15 & 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker et al. (US 6,775,231) in view of Kalkunte et al. (US 6,470,016).

Regarding claim **14**, Baker et al. (US 6,775,231) teach all the limitations of claim 14 (see the rejection for claim 12 above) except Baker et al. (US 6,775,231) does not expressly disclose a method further comprising assigning a scheduling priority to each class, wherein the predefined criterion is to select a class with the highest scheduling priority of the identified classes for forwarding a packet of that class. Kalkunte et al. (US 6,470,016) teaches each queue is associated with a particular priority (see column 3, lines 64-65) and beginning the data transmission with a highest priority queue (see column 01, line 42). At the time the invention was made it would have been obvious to a person in ordinary skill in art to modify the method of attaining per-hop behavior of Baker et al. (US 6,775,231) by assigning scheduling priority to each queue and selecting the one with the highest priority as indicated by Kalkunte et al. (US 6,470,016). One in ordinary skill in art would have been motivated to do this to schedule the data having different priority levels (see column 1, lines 20-25 of Kalkunte et al. (US 6,470,016)).

Regarding claim **15**, Baker et al. (US 6,775,231) teach all the limitations of claim 15 (see the rejection for claim 12 above) except Baker et al. (US 6,775,231) does not expressly disclose a method, wherein over the time interval each class with a non-empty queue is receiving more than the minimum percentage of the available bandwidth allocated to that class and further comprising selecting a class with a non-empty queue that has the highest scheduling priority of those classes that are receiving at most the

respective allocated nominal departure rate, for forwarding a packet of the selected class. Kalkunte et al. (US 6,470,016) teaches "bandwidth adjustment procedure 502" (see column 6, lines 55-60) and "bandwidth reallocation procedure described in Fig. 11" (see column 9, lines 45-55). At the time the invention was made it would have been obvious to a person in ordinary skill in art to modify the method of attaining per-hop behavior of Baker et al. (US 6,775,231) by assigning bandwidth adjustment procedure and bandwidth reallocation procedure. One in ordinary skill in art would have been motivated to do this to dynamically reallocate any unused bandwidth (see column 3, lines 30-34 of Kalkunte et al. (US 6,470,016)).

Regarding claim 19, Baker et al. (US 6,775,231) teach all the limitations of claim 19 (see the rejection for claim 12 above) except Baker et al. (US 6,775,231) does not expressly disclose a method further comprising assigning a scheduling priority to each class based on a criterion. Kalkunte et al. (US 6,470,016) teaches each queue is associated with a particular priority level (see column 3, lines 64-65). At the time the invention was made it would have been obvious to a person in ordinary skill in art to modify the method of attaining per-hop behavior of Baker et al. (US 6,775,231) by assigning scheduling priority to each queue as indicated by Kalkunte et al. (US 6,470,016). One in ordinary skill in art would have been motivated to do this to schedule the data having different priority levels (see column 1, lines 20-25 of Kalkunte et al. (US 6,470,016)).

9. Claim 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Baker et al. (US 6,775,231) and Kalkunte et al. (US 6,470,016) as applied to claim 15 above, and

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further in view of Wang et al. (US 6,748,435). Baker et al. (US 6,775,231) and Kalkunte et al. (US 6,470,016) teaches all the limitations of 16 (see the rejection for claim 15 above) expect Baker et al. (US 6,775,231) and Kalkunte et al. (US 6,470,016) do not expressly disclose method wherein over the time interval each class with a non empty queue is receiving more than the nominal departure rate allocated to the class, and further comprising selecting a class with a non empty queue that has the highest scheduling priority. Wang et al. (US 6,748,435) teaches green packet is demoted to yellow if the packet rate of the green packets exceeds the negotiated rate (see column 5, lines 35-45). At the time the invention was made it would have been obvious to a person in ordinary skill in art to modify the method of attaining per-hop behavior of Baker et al. (US 6,775,231) and Kalkunte et al. (US 6,470,016) by allocating a packet of a class that is receiving more than its nominal departure rate to another class with a highest scheduling priority as indicated by Wang et al. (US 6,748,435). One of ordinary skill in art would have been motivated to do this to ensure that the packets are allocated fairly relative to the respective flow traffic rate (see column 3, lines 61-63 of Wang et al. (US 6,748,435)).

10. Claim 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Baker et al. (US 6,775,231) in further view of Wang et al. (US 6,748,435). Baker et al. (US 6,775,231) teaches all the limitation of the claim 17 (see rejection for claim 12 above) expect Baker et al. (US 6,775,231) does not expressly disclose method wherein over the time interval each class with a non empty queue is receiving more than the nominal departure rate allocated to the class, and further comprising selecting a class with a non

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empty queue that has the highest scheduling priority of those classes that are receiving at most the respective allocated minimum percentage of available bandwidth, for forwarding a packet of that selected class. Wang et al. (US 6,748,435) teaches green packet is demoted to yellow if the packet rate of the green packets exceeds the negotiated rate (see column 5, lines 35-45). At the time the invention was made it would have been obvious to a person in ordinary skill in art to modify the method of attaining per-hop behavior of Baker et al. (US 6,775,231) by allocating a packet of a class that is receiving more than its nominal departure rate to another class with a highest scheduling priority as indicated by Wang et al. (US 6,748,435). One of ordinary skill in art would have been motivated to do this to ensure that the packets are allocated fairly relative to the respective flow traffic rate (see column 3, lines 61-63 of Wang et al. (US 6,748,435)).

Allowable Subject Matter

11. Claim 5 & 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Puneet Bhandari whose telephone number is 571-272-2057. The examiner can normally be reached on 9.00 AM To 5.30 PM.

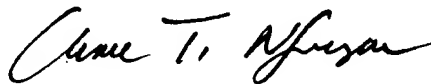
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Puneet Bhandari
Examiner
Art Unit 2666

PB



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